DOCUMENT RESUME

ED 239 653 IR 050 619

TITLE	Science and Technology Libraries Section. Special Libraries Division. Papers.
INSTITUTION	International Federation of Library Associations, The Hague (Netherlands).
PUB DATE	Aug 83
NOTE	53p.; Papers presented at the Annual Conference of the International Federation of Library Associations (49th, Munich, West Germany, August 21-27, 1983).
PUB TYPE	Reports - Descriptive (141) -- Speeches/Conference Papers (150)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Arabic; Developing Nations; Foreign Countries; Government Libraries; *Information Services; International Organizations; Library Associations; Library Catalogs; *Library Services; *Online Systems; Patents; *Research Libraries
IDENTIFIERS	*Access to Information; China; France; *Scientific and Technical Information; Unpublished Materials; West Germany

ABSTRACT

Papers on scientific/technical information and libraries, which were presented at the 1983 International Federation of Library Associations (IFLA) conference, include: (1) "Patents as Information--An Unused Resource" by Richard D. Walker (United States); (2) "Survey of the Information Services of the Library of the German Patent Office" by Eckhard Derday (West Germany); (3) "Prospects of Development of the Automated System of the State Public Library for Science and Technology within the Framework of the State Automated System of Scientific and Technical Information" by I. M. Kharina (USSR); (4) "A Progress Report on the Multi-Lingual Information Systems Project," in which Yasushi Sakai and Yoichi Terashita (Japan) describe the experimental processing of Arabic texts using LINKIT (the Kanazawa Institute of Technology library online catalog system based on 16-bit encoding and currently accommodating Japanese characters and symbols, as well as Latin, Cyrillic, and Greek alphabets in upper and lower case); (5) "Access to French Grey Literature: The Contribution of the Centre de Documentation Scientifique et Technique (CDST) du CNRS (Centre National de la Recherche Scientifique)," in which Jacques Keriguy (France) describes CDST activities in providing access to research reports, patents, standards, theses, translations, and other unpublished scientific and technical literature; and (6) "Research and Development Challenge: Better Services in Scientific and Technical Libraries," in which Peng Guiyuan (China) describes the operation and activities of the Library and Information System of the Chinese Academy of Sciences (LISCAS). (ESR)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED239653

INTERNATIONAL FEDERATION OF LIBRARY ASSOCIATIONS
General Conference Munich, West Germany, August 21-27, 1983
Science and Technology Libraries Section. Special Libraries Division. Papers.

IR052619

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

IFLA

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IFLA 1983

IFLA GENERAL CONFERENCE MUNICH 1983

Division: Special Libraries

Section: SCIENCE AND TECHNOLOGY LIBRARIES

71 - SCIE - 3 - E

PATENTS AS INFORMATION--AN UNUSED RESOURCE

by

RICHARD D. WALKER

PROFESSOR, UNIVERSITY OF WISCONSIN-MADISON
LIBRARY SCHOOL
MADISON, WISCONSIN (USA)

For internal use only:
to be brought to meeting no:
. . . . . 189 . . . . .
Remarks:
to be presented orally ☒
for distribution only ☒

13 May 1983
Draft

Patents as Information--an Unused Resource

Introduction

The Industrial Revolution began in England in the eighteenth century, spread to continental Europe and overseas in the span of one hundred and twenty years to transform Western man's society, and life style, not to say his Weltanschauungen or conception of the universe. The heart of the Industrial Revolution was a series of technological changes. Change lead to change. We are now in a post-industrial society in much of that same Western World, a society that has been variously described as "technological," "informational," and "high-tech," to name but a few of the terms used. But from the Industrial Revolution's very beginning there has been a sustaining advance of technology--most of which has been carefully recorded in the patent literature of the world, a veritable treasure house of information upon which much of the world's industrial progress has been based. Patents represent a clear indication of the past and present thinking of our most ingenious minds and show the way to the future. This recording of progress is particularly true for the last one hundred and fifty years, and is best in the more highly developed countries. Although the technology may primarily originate in countries most technologically advanced, the record of the advance is there for all who would avail themselves of it. A patent system performs several useful roles: stimulates invention, encourages innovation, development, and investment, and facilitates dissemination and disclosure of technological information. These latter two roles are of prime importance to my thesis: the information is

there, available, of value, and ripe for exploitation. There are unique features of this post-industrial/technological society that have profound influences upon the patent systems of the world and affect their operation, direction, value, and use. Patent documentation facilitates the creation of new technology by identifying and describing available technology; it further facilitates the assimilation and adaption of technology, which in turn leads to the creation of still more technology through modification, improvement, and amplification in different societies and environments. In developing countries the described technology in patents lends itself to adaption to the local situation, new application for local users, and extention for local requirements and needs.

Patents as Sources of Information

The primary role of patents (and this is true in a great many countries of widely varying social systems) is to encourage the disclosure of inventions for the benefit of the public at large in return for a monopoly for a limited time or special compensation granted by the issuing government. The basic principle is simple. It is in the public interest that industrial advances be made. In order to encourage advancement, and to encourage the disclosure of advancements in lieu of keeping them secret, an inventor of an improvement of a manufactured article, or a machine, or method of making it may upon disclosure of it can ask for and be granted (under specified procedures) a monopoly for a specified period of time. As a result, the collected patent literature of any major industrial country contains an important store of valuable technical information, copies of which are sold cheeply because the cost of publication is for a great extent paid for by the inventors in the forms of fees.

In the United States an inventor, to be granted a patent must submit "... a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains... to make and use the same..." The inventor is further required to "... set forth the best mode contemplated by the inventor of carrying out his invention..." Although not every country that has a patent system is a "full disclosure" country, some level of disclosure is required to obtain a patent in every country where coverage is desired and this creates a document that is potentially an excellent source of that information; a potential dramatically unrealized. I should like here to speak to that potential and how much of it has been realized in the past and how the information might be better exploited, particularly in developing countries.

There are over one half million patents issued each year, 70,000 to 80,000 issued in the U.S. alone; perhaps as many as 200,000 issued each year in Japan. In these patents can be found the descriptions of almost all the newly developed technology. Every patent includes:

1) a technical problem (often of great economic value),
2) an inventive idea designed to solve that problem,
3) a product or a process
4) a record of the state-of-the-art, that is to say, the scientific and technical information and knowledge upon which the new idea is based and out of which it grew, including in some cases the knowledge that followed it.

This information contributes to all three decision stages leading to technical change:

1) creation,

2) imitation,

3) dissemination

Further, patent documentation plays a significant role in the transfer of foreign technology, the creation and development of national technology and the internal dissemination of both.[1] "... patent documents turn out to be a vast, invaluable store of technological information and ... the most precisely managed and best organised store for retrieval that there is."[2] Hill goes on to point out that patent documents are issued solely for their information value, that they have no literary merit nor are they aesthetically pleasing to the eye.[3]

The Potential Use of Patent Information

There are numerous characteristics of the present research scene that suggest reasons for using all available sources of technical information. Characteristics that are, if not new, of recent origin:

1) Rapidly rising rate of research in scientific and technical areas.

2) Rapidly shortening time lapse between the conception of an idea and its commercial exploitation.

3) Rapid absolescence of technological ideas.

4) Increasing commercial pressure to do it better, faster, and cheaper.

5) Ever increasing international trade of materials, ideas, equipment, and technology.

6) Ever expanding markets--or put differently--more and more of the world is becoming users and builders of technology.

There is a keen competition for new ideas, one is even tempted to say that it is the single most conspicuous characteristic of our times. Patent

documents deal exclusively with new ideas and are, therefore, an important part of the technical literature.

Technological change can take place within a given country in several ways, if such change is defined as the introduction of new products and processes through the application of knowledge. It can be through creative effort resulting in the discovery of a new solution to a problem of production. It also can come about through the introduction of new application borrowed from outside the country but proved effective or otherwise successful elsewhere. And, lastly change can be the result of an effort to distribute an existing technology more thoroughly and more widely than previously done, both original innovation or borrowed innovation. This latter includes new adaptation and application within a given country.[4]

There is now evidence that supports the idea that the level of development of the economically advanced countries is due rather to the integrated action that has become known as the "residual factor" of technological progress and the general upgrading of human resources than to a combination of the classical factors of production (capital, labor, and natural resources).[5]

The Actual Use of Patent Literature

There is no question that patents are a ready source of information of both past and recent technology. Patents literature records almost all advances of technology, significant or trivial. In spite of this, potential users tend to consider patents to be relatively unimportant sources of information, or as one study put it, "information of last resort."[6]

There have been a few studies reporting on the use (or more correctly non-use) of patents and their publication in other forms of literature. One such study, now almost 20 years old, was conducted at the Denver Research

Institute for the U.S. National Aeronautics and Space Administration (NASA). In that study, authored by Gilmore, et al, an attempt was made to identify the means by which industries become aware of advances in technology. It was reported that use of patents was low compared to other sources of information. Specifically they reported: "on a scale of 100, patents ranked 5 for usefulness in both 'awareness' and 'problem solving', while trade and professional journals, meeting, supplier personnel and vendor catalogs ranked above 30 in nearly every instance." In this same study it was disclosed that patents literature was highly valued "both for the specific and detailed technical information it contained and for that portion of a patent application in which the state of the art was surveyed."[7]

Industrial chemists, reported in a study conducted at the American Chemical Society by Hannay, et al, had patent search services available to them but put them to little use. Of those surveyed, 84% had such services available, but only 58% made use of them.[8]

Two other studies concerned with the extent to which patent literature is cited or published in non-patent literature have been referred to often. In an article in the UNESCO Bulletin for Libraries, Vcerasnij reports only 5-10% of new technology found in patents is reported in other sources.[9] Although he does not tell us how he arrived at these figures or which patents, from where, were used or not used. The most refrequently cited study is the Liebesny study, "The Scientific and Technical Information Contained in Patent Specifications" reported in The Information Scientist, in 1974. Here, Liebesny et al, found that only 5.8% of technology in British Patents was reported in non-patent literature. This was a properly controlled study upon which we are able to place confidence.[10]

From these above mentioned studies and less precise sources it is known that the availability of patent documents affects their utility. For the

most part patents are not as available as other forms of scientific and technical literature, particularly the archival research journals and technical periodicals. It would appear that patents are used in the U.S. more by large industrial organizations and much less by smaller ones. In academe there is little evidence that patents are used at all and at best play minor roles in both instruction and research. Patent literature is perceived to be of little importance as a source of information.

There may be many reasons why patents are little used, not to say ignored by researchers, teachers, and administration alike. Until recently patent databases were unavailable for general use. Language may be a problem, patents are written in their own particular language, which is difficult for the researcher to untangle, different than the "open" language of the archival journal or the trade periodical. Additionally, the first publication may be in a foreign language not read by the researcher. An example of this latter difficulty the large number of patents from Japan, a language little known outside that country but one that can not be ignored because it is today a major source of technological development.

There have been two studies conducted by the U.S. Patent and Trademark Office to measure the importance of patent literature, both U.S. and foreign, as a technological information source. The first study sought to quantify the extent to which technology described in U.S. patents has been published in the non-patent literature when there was subsequent publication. The second was an investigation of the usefulness, in comparison to other sources, of the Patent File in uncovering technology pertinent to specific problems.

The first study concluded that 71±10% (confidence intervals at the 0.90 level) of patent information is not subject to publication in non-patent literature. Of the remaining patents, 16±8% were substantially dis-

closed in the non-patent literature. An article was considered to "substantially" disclose the technology in a patent of 75% or more of the patent technology was disclosed. Additionally, 13±6% were only partially disclosed; these latter patents were only minimally disclosed in articles which had no specific reference to the patent. The overall result indicates that patents are a unique source of technological information and are little duplicated in other media of scientific communication. There was not a significant difference in disclosure between foreign patents and U.S. patents.[11]

The second study dealt with the voluminous collection of technical literature known as the Patent File in the U.S. Patent and Trademark Office. At the present time that file numbers approximately 25 million documents, of which 13.6 millions are U.S. patents, 10.5 millions are foreign patents, and 1.2 million pieces of non-patent literature. Without going into detail on the method used, but only reporting the general findings here, it was learned that a significant amount of information was not found using search strategies in such sources as Chemical Abstracts, and other traditional bibliographic tools.

Because patents contain new combinations of old ideas, old concepts applied in new ways, or new concepts applied in another field; and because patents either solve problems, or create new products, or new uses, or improve or modify present technology to meet new needs, they play a significant role in the transfer of technology from advanced to developing countries, particularly those with their own patent systems. A country with a patent system finds it easy and cheap to know of technology, its applications, its alternatives, and its distribution and availability. In addition, with patent literature available to them, they are better able to assess the value of technology than they would be without it.

Ignorance may be the single most important factor for the lack of trans-

fer of technology and the lack of use of the patent literature, which at the same time could lessen the ignorance and speed up the transfer. Often it is the lack of awareness of the existance of the technological possibilities and alternatives or adaptations that slows down the transfer.

Other factors that may affect the transfer of foreign technology, most particularly in a technology poor country are: historical, social and cultural, economic, and institutional. The importation of technology is always more expensive than first thought and the costs are increasing at an ever increasing rate.

Patents Used in Forecasting

Patents are also applicable for one additional use: in most of the internationally recognized techniques of forecasting, especially the mid-range techniques.[12] Mid-range is usually 4-10 years. Ivanov gives three reasons patents are particularly useful in forecasting: 1) the patent literature enables us to obtain a detailed and systematic idea of the world state of the art, and of the trends and prospects of a given branch of industry by being

a. most up to date
b. most reliable
c. most complete
d. concrete solutions to problems
e. retrievable systematically from the large mass of information
f. written in a concise language
g. written in an informative language
h. written in a formalized language

2) provides one of the most representative mass-scale sources of information. The need for legal production of industrial property rights for inventors as a basis for further exclusive rights for commercial exportation impels all the organizations engaged in research and development activities to patent their results as extensively as possible. 3) by giving prior art, important bibliographic data is contained in patents showing general and specific technological development and industrial structure revealing the inventor's need

for resources and suggesting areas of growth and directions of economic commitment.

Again, useful but underused.

A Way of Identifying Technologically Important Patents

One last point. Research presenting being done by F. Narin, M. P. Carpenter, and P. Woolf is showing a new way of identifying patents of technical importance. First reported as a pilot study in 1981 and most recently presented at the OECD Patents and Innovation Statistics Seminar in Paris, in June 1982, these studies, carried out at Computer Horizons, Inc., and supported by the U.S. National Science Foundation, provide strong evidence for the hypothesis that patent citation data can be used in technological indicators developmert, and in technological policy analysis by suggesting that the location and analysis of groups of highly cited patents can provide a valid indicator of patent areas of technical importance.[13] It will be interesting to watch this research to see if this method can be applied to patents successfully and if it proves to be a good identifier of important patents, which in turn can be used as an indicator of technical importance.

Conclusion

It is hoped that these several bits of evidence herewith presented adds strength to an increasing appreciation for the worth of patents as a source of information and that as more patent databases are made available patent's true value will be realized. IFLA may be an organization well placed to help to broaden the appreciation and use of patents.

Footnotes

[1]Ernesto D. Aracáma-Zorraquén. In: WIPO. The Role of Patent Information in Research and Development; collection of lectures given at the Moscow Symposium, 1974. Geneva, WIPO. 1975. p. 242.

[2]Michael Hill. Patent Documentation. London, Sweet & Maxwell, 1979. p. 5.

[3]Ibid.

[4]Op. Cit. Ernesto D. Aracáma-Zorraquén. p. 241-250.

[5]Ibid.

[6]Technology Assessment and Forcast. Eighth Report. December 1979. U.S. Patent and Trademark Office. p. 23.

[7]John S. Gilmore, et al. The Channels of Technology Acquisition in Commercial Firms and the NASA Dissemination Program. Denver Research Institute, University of Denver, Denver, Colorado, for the National Aeronautics and Space Administration. NASA CR-790. 1967.

[8]N. B. Hannay, et al. Cost Effectivensss of Information Systems, Subcommittee on the Economics of Chemical Information. American Chemical Society, May 1969.

[9]R. Vcerasnij. "Patent information and its Problems." UNESCO Bull. for Libraries, vol. 23, September/October 1969. p. 234-239.

[10]F. Liebesny, et al. "The Scientific and technical information contained in patent specifications--the extent and time factors of its publication in other forms of literature." The Information Scientist, December 1974. p. 165-177. Also OSTI Report 5/77, London 1973.

[11]Op. Cit. Technology Assessment and Forcast.

[12]Ivan Ivanov. "Use of patent information in technology forcasts." In: The Role of Patent Information in Research and Development. Moscow. Symposium, October 7-11, 1974, World International Property Organization, Geneva, 1975. p. 83-102.

[13]F. Narin, M. P. Carpenter, and P. Woolf. Corporate Technological Performance Assessment Based on Patents Citations. CHI Research/Computer Horizons, Inc., Cherry Hill, New Jersey, USA. 1982. Presented at the OECD Patents and Innovation Statistics Seminar, Paris, June 28-30, 1982. 36 p. and: M. P. Carpenter, F. Narin, and P. Woolf. "Citation rates to technologically important patents." World Patent Information, vol. 3, 1981. p. 160-163.

IFLA 1983

IFLA GENERAL CONFERENCE MUNICH 1983

Division: Special Libraries

Section: Science and Technology Libraries

70 - SCIE - 2 - E

Survey of the Information Services of the Library of the German Patent Office

by

Eckhard Derday

Library of the German Patent Office
Munich
Federal Republic of Germany

156 a

For internal use only:
to be brought to meeting no:
156a/ Chairman will fetch the papers at the IFLA Secretariat (0-2--04) on Thuesday before 11 am
Remarks:
to be presented orally ☒
for distribution only ☐

Eckhard Derday

SURVEY OF THE INFORMATION SERVICES OF THE LIBRARY OF THE GERMAN PATENT OFFICE

Dr. Eckhard Derday, Library of the German Patent Office, Munich

Within the framework of this year's IFLA conference theme "libraries in a technological world", the professional meetings of the Section of Science and Technology libraries deal with the subject of patents as prime information sources, their use and the means of their availability. In support of the visit to the library of the German Patent Office, Munich, this paper describes the holdings and the searching aids of this library. Special attention is given to the fact that the public has the opportunity to make searches for information that represents the latest technical level.

The Library of the German Patent Office assumes a two-fold task. On the one hand, it is the internal library for the officials of the German Patent Office and of the Federal Patent Court and, on the other hand, it is a public library with free access for the general public.

As one of the largest specialized technical and scientific libraries, it provides, as part of its services, the two authorities mentioned above and the public with information on the state of the art and on the protection of industrial property and copyright. The information available, related in particular to patent documents, technical literature and searching aids, is available to the general public by direct access. The aim of this paper is to describe its content and scope.

PATENT DOCUMENTATION

The holdings of patent documents, including utility models, in the Library is divided into two sections, one is numerically arranged and the other is arranged according to classification.

The first part covers some 22 million patent documents from a total of 28 States and two international organizations (European Patent Office and World Intellectual Property Organization), contained in some 330,000 volumes.

In addition, there are some 1.2 million patent documents on approximately 5 million aperture cards and microfiches from 9 countries (Australia, Belgium, Canada, Denmark, Federal Republic of Germany, France, Netherlands, Norway and Sweden).

Furthermore, the utility models are available either as paper copies, roll film or aperture card.

A further microform is constituted by some 3,400 films with approximately 730,000 patent documents, most of which are of an earlier date (e.g. FIAT Reports). The collection arranged in accordance with classifications - corresponding to the German Patent Classification (DPA) or the International Patent Classification (IPC, since 1974) - contains some 7 million patent documents in approximately 290,000 group files from 8 countries or international organizations (Austria, European Patent Office, Federal Republic of Germany, France, German Democratic Republic, United Kingdom, United States, World Intellectual Property Organization).

The holdings of patent documents are supplemented by a series of abstracts.

For the German patent documents there are also abstracts from the examined patent applications, the unexamined patent applications and the patents themselves, and as from 1980 the abstracts of the European patent applications are given as an appendix to the examined patent application. Further, the abstracts from the utility models are available in a card index (WILA index) arranged in accordance with the German Patent Classification (1964 to 1973) and the International Patent Classification (as from 1974).

Likewise, as from 1978 onwards, there exist classified summaries of abstracts from European patent applications.

In addition, English language abstracts of Japanese (from 1976 onwards) unexamined patent applications are available, arranged by publication number.

The patent documents are partly kept in storage and can only be lent with an order form (particularly as regards the numerical collection) or are available for direct access by the general public (particularly from the classified collection).

TECHNICAL LITERATURE

The Library has systematically acquired over the last 100 years some 450,000 volumes of monographs and articles from periodicals. The emphasis of this collection is placed, in accordance with the tasks allotted to the Library, on the fields of technology, applied sciences, industrial property and copyright.

The holdings are mostly kept in storerooms but can, however, be made available to the public for lending.

SEARCHING AIDS

The Library is able to offer a number of information aids for use in connection with the available technical and legal information. These aids facilitate the finding of the desired information. Since the individual problems concern specific aspects of differing technical areas, the information aids must permit possible solutions from various points of view.

Patent documentation

The central searching aid in the area of patent documents is constituted by the indexes from INPADOC (International Patent Documentation, microfiche edition). The INPADOC Patent Gazette (IPG, weekly index) and the corresponding cumulative indexes present the bibliographic data for patent documents from 51 countries. Using these indexes it is possible to search subject matters according to patent number, IPC, applicant or inventor.

The German Patent Office offers paper copies of all microfiche-services of INPADOC which are available for the public. Moreover online-searches for patent families will be done in the INPADOC-Database. For both services a fee is to be paid.

Mention should also be made in connection with these searching facilities of the indexes of the group divisions of patent classes under the German Patent Classification and the International Patent Classification, together with the corresponding keyword indexes. In addition, the corresponding concordance lists between the German and International Patent Classification (and vice versa) and those of the various editions of the International Patent Classification are available.

There exists a series of further indexes to assist in patent searching.

Thus, roll film exists for the period 1950 to 1975 with the annual indexes of applicants' names and classes for the German examined patent applications, patents and utility models. The continuation of this data is to be found in the INPADOC indexes (see above).

A monthly index of applicants' names (from 1976 anwards) and an index of the contents of group files arranged in accordance with the IPC (as from 1974) are available on microfiche for the German examined patent applications, examined patent applications, patents and utility models.

In addition, the quarterly index of names in the Patent Gazette and the annual index of the examined patent applications and granted patents are available as paper copies in bound volumes.

These indexes have recently been extended by the German translations of patent claims from European patent applications.

Finally, mention should also be made of over 100 official and patent Gazettes issued by the patent offices, which are also used in patent searching.

As an aid in using the technical literature, the Library possesses a cataloguing system in which the holdings of books and periodicals since 1877 can be found.

This is done by means of a cross catalogue in which the holdings between 1877 and 1974 are arranged alphabetically by author, title and keyword. As from 1975, a separate alphabetical catalogue - based on the "Rules for Alphabetical Cataloguing" (RAK) - and a separate keyword catalogue has been kept. As regards access to subject matter, a systematic and a keyword catalogue are currently being compiled as is a catalogue of works with technical content arranged in accordance with the IPC, which will cover the literature as from 1975.

In addition, a number of bibliographies are available (e.g. Science Citation Index, 1977 et seq.; The Engineering Index, 1884 et seq.; Index to Scientific and Technical Proceedings, 1968 et seq.) for the identification of technical subject matter.

A special mention should be made of the "Bibliography of periodical literature on the state of the art," 1976 et seq., in which periodical articles relevant for the state of the art and which are included in the examination files of the German Patent Office may be found.

The available searching aids are supplemented by the provision of general reference works (e.g. encyclopedias, dictionaries) and by the freely accessible collection of current DIN standards which may be inspected free of charge by anyone.

In addition, the Library has set up a daily advisory service carried out by librarians which, in addition to general information concerning organization questions, also provides users with explanations concerning the handling of the information facilities described above.

Finally, mention should be made of the fact that the Library has produced detailed "user information" concerning its information services, which it can also send on request.

IFLA 1983

49 th IFLA Session
Munich, GFR, August 22-27,1983
Division of Special Libraries
Section for Scientific and Technical Libraries

97 - SCIE - 4 - E

PROSPECTS OF DEVELOPMENT OF THE AUTOMATED SYSTEM OF THE STATE PUBLIC LIBRARY FOR SCIENCE AND TECHNOLOGY WITHIN THE FRAME'-WORK OF THE STATE AUTOMATED SYSTEM OF SCIENTIFIC AND TECHNICAL INFORMATION

KHARINA I.M.
Director of theGPNTB of the USSR

Moscow, USSR

For internal use only:
to be brought to meeting no: 116

Remarks:
to be presented orally ☐
for distribution only ☒

ANNOTATION

In the period from 1976 to 1980 the main methodological principles of the functioning and development of the State system of scientific and technical information, based on computerization, were developed in the country. Work in the field of standardization of library/information and publishing activities was also carried out. The State Public Library for Science and Technology of the USSR /GPNTB/, as the All-Union centre of information, research and methodology for special, scientific and technical libraries, together with other large libraries and information bodies of the country, develops methodological principles of interaction of information and library services, which make up the network of interconnected automated centres of scientific and technical information (SATSNTI).

The integrated computerized system of the GPNTB of the USSR functions since 1980. The aim of this system, generated by the GPNTB, is to raise the quality of service of specialists engaged in national economy, workers in the field of science and industry. The automated system of the Library envisages complex automation of library and information ptocesses.

The AS of the GPNTB is being improved with due regard for its place in the State automated system of STI and envisages the creation of universal sets of techological processes and typical units.

I.M.Kharina

PROSPECTS OF DEVELOPMENT OF THE AUTOMATED SYSTEM OF THE STATE PUBLIC LIBRARY FOR SCIENCE AND TECHNOLOGY OF THE USSR WITHIN THE FRAMEWORK OF THE STATE AUTOMATED SYSTEM OF SCIENTIFIC AND TECHNICAL INFORMATION

The current state of information and library activities is characterized by the staged transformation of the State system of scientific and technical information (GSNTI) into the State automated system of STI (GASNTI), which envisages large-scale computerization of all areas of activity of information bodies and scientific and technical libraries. Conventional information procedures and library bibliographical processes will be gradually replaced by computerized information and library procedures and automatic technology of gathering, processing, storing and utilizing STI. In the period from 1976 to 1980 main principles have been worked out and decisions concerning the generation and development of the GASNTI in general, and its first phase - the network of automated centres of STI (SATSNTI) in particular, have been made.

The creation of the GASNTI called for expansive and detailed standardization, unification and use of type designs in all areas of information, library and publishing activities. It is for this purpose that the programme of standardization of information, library and publishing activities (SIBID) is being realized. The development of SIBID standards is being carried out with the active support of leading scientific and technical libraries of the country. The approved Rubricator of the GASNTI, which represents the basis for the development of specialized and local rubricators, is a very

significant development as it is called upon to meet the requirements of linguistic compatibility of computrized informatio/library systems developed for different purposes, which are of different thematic or species character and are located in different regions.

The leading scientific and technical libraries of the country, that have the necessary scientific , material and technical potentials for the development and introduction of automated information/ library systems, are assigned an important role in the creation and improvement of the GASNTI.

The GPNTB of the USSR is the basic unit in the network of scientific ,technical and special libraries, included into theGSNTI, and is its research and methodological centre. This determines the leading role of the GPNTB in research dealing with the automation and mechanization of library and bibliographical processes in libraries for science and technology. The results of previous studies (I975 - I980) made it possible to determine the following major propositions, which represent the methodological basis for the computerization of library activities in the GPNTB itself and in the country-wide network of libraries for science and technology:

-maximum use of type designs and unification of technological processes and operations in the system;

one-fold input of source information and its multi-purpose use;

-Maximum unification of structures and forms of input and output documents;

- provision for developing the structure through modular build up of hardware and software components;

- compatibility with other systems of GASNTI and the Internatinal Scientific and Information System of the CMEA.

The automated integrated library/information system (AS of the GPNTB of the USSR) was developed on their basis. This system functions since 1980 and its main purpose is the raising of the effectiveness and quality of servicing employees in the field of science and industry, specialists engaged in economics and the advancement of information/library technology.

When developing and improving the AS of the GPNTB, the generation of universal sets of technological processes and modules, the use of which in different combinations would be possible whith the help of available technical means in the network of scientific and technical libraries, is obligatory.

One example of dimensional, All-Union coverage of information service, realized within the framework of the AS, is the reference/address service for foreign books and periodicals. This on-line service provides answers to requests concerning the location of primary sources in the network of scientific and technical libraries of the country and satisfies thematic and bibliographical requests dealing both with current acquisintions and the retrospective data file on foreign books and periodicals. The service uses international standard book and serail numbers. For the convenience of users the codes of libraries holding primary sources are cited in keeping with mail and telegraph indexes. The State union printed catalogue of foreign books and serials is put out on the basis of a data bank which is constantly being replenished.

The service does not only raise the efficiency of the subscribers' servicing but makes it possible to incessantly follow the building up of library collections containing primary sources and support the analysis of subscriptions for foreign publications.

The AS of the GPNTB also solves a number of problems connected with the processes of acquisition, processing and relocation of collections within the library : it puts out financial documents for the ordering of literature, lists of ordered and processed publications and acquisitions, discount and accompanying documents to batches of literature, which is being processed, catalogue and registration cards for readers' and official catalogues and files.

Apart from this, the system delivers answers to single bibliographical inquires of subscribers.

Since 1981 the problem "AS Subscriber" has been put into operation within the framework of the AS of the GPNTB, which has made it possible to raise the effeciency of the service of subscribers, diminish terms of satisfaction of requests with the help of automatic control of the traffic of requests and of terms of satisfaction of requests in all functional subdivisions of the Library.

"AS Subscriber" helps to keep requests on file in cases, when the publication has been issued to another subscriber, reminds the user that the loan period has expired, transfers and re-addresses requests within the interlibrary loan system. The latter circumstance expands the sphere of functioning of the subsystem and it now applies to the network of scientific and technical libraries that interact with the GPNTB of the USSR.

The problem "Analysis of readers' demands" has also been exploited since 1981. It helps to analyse demands and the success rate or refusals to grant readers' requests according to different forms of literature, themes, dates of publication and titles of concrete domestic and foreign books and periodicals. The analysis of requests coming through interlibrary loan channels permits the evaluation of the quality of acquisition of library collections in different subject fields and regions.

A computerized on-line information retrieval system for published

algoriths and programmes, which are in particularly high demand among the subscribers of the Library, is being put into operation. A number of problems connected with the replenishment of the data file with elements of bibliographical references, the results of linguistic processing of documents, automated generation of the annotated bibliographical index "Algoriths and programmes" with an annual cumulation of monthly issues, are being solved by the system. Thematic and bibliographical search of the collection of algorithms and programmes with the help of terminals, release of information on magnetic tape to collective subscribers and the servicing of subscribers through remote tele-terminals are also envisaged.

The prospects of development of the AS of the GPNTB of the USSR within the GASNTI framework are closely bound up with the wide use of data files on magnetic tape held by the magnetic-tape service, created in 1980, which includes magnetic tapes of the All-Union Book Chamber, the All-Union Centre for Translations and some other organizations. These prospects are also connected with the species and thematical, regional automated STI systems.

The programme for 1981-1985, dealing with the development of typical methods of automation of certain library/bibliographical processes, such as the building up of collections, subscription for periodicals, the exposure of duplication of literature, the analysis of circulation and dynamics of reference/information collections, the analysis of demands and readership, control and management of technological aspects of service and the preparation of union catalogues for different subject fields and regions, has been approved on the basis of the experience of the development and operation of the AS of the GPNTB of the USSR.

The full realization of these and other tasks of automation of library and bibliographical activities will impressively contribute to the development and improvement of the GASNTI.

IFLA 1983

IFLA GENERAL CONFERENCE MUNICH 1983

Division: Special Libraries

Section: Science and Technology Libraries

143-SCIE-5-E

A PROGRESS REPORT ON THE MULTI-LINGUAL INFORMATION SYSTEMS PROJECT

Yasushi Sakai and Yoichi Terashita

Library Center
Kanazawa Institute of Technology

Report prepared for Science and Technology Libraries Section
IFLA 1983, Munich, Federal Republic of Germany

For internal use only:
to be brought to meeting no:
.....116.....
Remarks:
to be presented orally ☐
for distribution only ☒ 1f

A PROGRESS REPORT ON THE MULTI-LINGUAL INFORMATION SYSTEMS PROJECT

Yasushi Sakai and Yoichi Terashita

Library Center
Kanazawa Institute of Technology

Report prepared for Science and Technology Libraries Section
IFLA 1983, Munich, Federal Republic of Germany

As reported earlier by us (INSPEL, Vol.17, No.1, pp.5-20, 1983), use of a 16-bit encoding system opens up a new possibility of implementing computerized, multi-lingual information systems, with which textual information of various languages can be stored and retrieved. With a conventional encoding system, an 8-bit unit (in accordance with the access unit of most computers now available) is used to store a textual symbol. In this case, a maximum of only 256 different symbols (usually much less) can be handled. When the storage unit for symbols is expanded to 16 bits, on the other hand, a maximum of 65,536 different sysmbols can be attained, thus enabling one to store and retrieve textual information in many different languages.

The LINKIT library system at Kanazawa Institute of Technology is based on such an encoding system. It now accommodates about 6,700 kanji characters and two types of kana symbols (for Japanese texts), as well as Latin, Cyrillic and Greek alphabets both in upper- and lower-cases. To explore the multi-lingual capability of the system, we have undertaken an experimental project for processing of Arabic texts, a language that is one of the most widely used in the world.

For those scripts mentioned above (Latin, Cyrillic, Greek, Japanese, and many others), computerization is more or less straightforward once a 16-bit system (accompanied by appropriate input/output facilities) is established. However, computerization of Arabic texts involves different types of complication. Most important differences are:

1) The direction of reading/writing is from right to left, as opposed to most languages. This imposes a difficult requirement, in particular, on the input procedure.

2) An Arabic letter changes its form, depending on the way the letter appears in the text: whether at the beginning, in the middle, or at the end of a word, or standing by itself.

We clearly need a special interface, whereby procedures to handle Arabic texts can be made compatible with usual text-processing facilities of conventional computers, and to this end a microcomputer has been employed.

Our direction is to use the microcomputer as an input/output terminal, which is programmed to perform editing functions necessary for Arabic texts, to convert such texts into normal form, and to transmit them to the host computer (and vice versa when it is used as an output terminal). Definition of the Arabic alphabet (in its four forms) has been more or less straightforward, since the microcomputer being used, like many others currently marketed in Japan, is equipped with the character-definition capability (enabling the programmer to define textual symbols of arbitrary form, and use them in the same manner as with standard characters).

Figure 1 shows the printout of a sample bibliographic record in Arabic. The record was inputted and edited with a NEC PC-9800 microcomputer, was trasmitted to and stored in a mainframe (IBM 4341) system, and printed by a laser-beam printer (IBM 3200). Complete assembly of the terminal Arabic-processing facility (software) is underway. Subsequently, it is planned to connect such a terminal to the LINKIT library system, so that bibliographic records in Arabic can be maintained on the LINKIT database.

We are grateful to Dr. M. Saleh Ashoor, Dean of Library Affairs, University of Petroleum and Minerals, Dhahran, Saudi Arabia, for his interest and assistance on this project.

ارسلان , شكيب امير, 1869-1947
Arslan, Shakib, amir, 1869-1946.
تاريخ غزوات العرب في فرنسا و سويسرا و ايطاليا و جزائر البحر المتوسط , تاليف شكيب ارسلان.[القاهرة] مطبعة عيس البابي الحلبي [مقدمة : 1932 or 3-1952]

307p. port. 25cm. £L15.00

Includes bibliographical references.

1. Arabs in Europe - Hist. I. Title.
Title romanized: tarikh ghazawat al-'Arab.

DS223. A75

NE67-909
PL480:UAR-8141

Figure 1. A sample bibliographic record involving Arabic texts.

IFLA
1983

145-SCIE-6-E

ACCESS TO FRENCH GREY LITERATURE : THE CONTRIBUTION OF THE CENTRE DE DOCUMENTATION SCIENTIFIQUE ET TECHNIQUE DU CNRS

Paper presented to the 49th conference of the IFLA (Munich, August 1983)
Scientific and technological library section

by Jacques KERIGUY
Head of the Library Department

For internal use only:
to be brought to meeting no:
.....116.....
Remarks:
to be presented orally ☒
for distribution only ☐

Dieses ist eine U-BIX Kopie — This is a U-BIX Copy — Ceci est une Copie U-BIX

ACCESS TO FRENCH GREY LITERATURE :
THE CONTRIBUTION OF THE CENTRE DE DOCUMENTATION SCIENTIFIQUE ET TECHNIQUE DU CNRS

Paper presented to the 49th conference of the IFLA (Munich, August 1983)
Scientific and technological library section

by Jacques KERIGUY
Head of the Library Department

On account of its ever-increasing volume and also the qualitative importance of the information it conveys, so-called "grey" or "non-conventional" literature justifies the efforts implemented in many a country with a view to handling its gathering, bibliographic description, particulars and access.
The aim of this paper is to measure and describe the participation of the Centre de documentation scientifique et technique (CDST) of the Centre national de la recherche scientifique (CNRS) in an undertaking essential to research development. Indeed, the CDST's purpose is to provide all French (university members and researchers from both the public or private sector) as well as foreign specialists with the information and documentation they need for their work. In the scientific and technical fields (exact sciences, life sciences, earth sciences and technology) it gathers, analyzes, indexes and communicates what it deems to be the main part of world literature. Based on a library carrying 19000 periodical titles, 14000 of which are living, and numerous non-periodical documents, it has since 1973 developed the PASCAL bibliographic reference data-base to which 450,000 new references are added every year to comprise 5 million references today. Placed on the Télésystèmes-Questel and ESA-IRS hosts, PASCAL can be consulted in conversational mode through several networks (EURONET, TYMNET and, of course, TRANSPAC in France). Amongst other products extracted from PASCAL, the CDST proposes bibliographic journals, standard or personalized profiles as well as scientific and technical map-indexes making it possible to display the status of scientific and technical research and follow its progression. In the same way, the Library constitutes the main tank of the department specialized in the supply of documents which proposes to reproduce the latter on paper or microform, satisfying 325,000 requests yearly.

These then briefly are the outlines of the CDST's tasks. So as to meet its users' expectations, it is understood that this organization strives to collect, process and communicate French and, to a lesser extent, foreign grey literature. Now, the undertaking is delicate. The term "grey literature" is employed to designate a large variety of documents, the leading feature of which is that they escape the commercial circuits ; consequently, they are not subject to the legal registration and do not appear in the current bibliographies drawn up by the national bibliographic agencies within the framework of the universal bibliographic control. Although the advantages of this literature are appreciated by researchers : speed and low cost of publication and, above all, absolute control of its dissemination by the issuing body, the drawbacks are, however, plainly noticed by librarians and documentalists who regret that this constantly renewed source of scientific and technological knowledge remains out of the reach of a good many potential users ; they deplore the confusion which prevails in the production and dissemination of grey literature, causing difficulties in all stages of the

documentary chain.

The foregoing definition, as has been stated, applies to a large number of documents. For its part, the CDST cannot receive them all and process them as well, but selects only those whose nature and discipline correspond to the task which has been entrusted it. This is why we will attempt to define its realm of activity exactly, before describing its actions in detail.

1.- REALM OF ACTIVITY

The attempts aimed at controlling grey literature can be conducted at international and national levels. The CDST strives to intervene, with the means it has available, in both cases.

1.1.- At the international level

Participation in SIGLE : a conference was held in York on 13th and 14th November, 1978 at the instigation of la Commission des Communautés européennes in conjunction with the BLLD. It was devoted to the problems posed by grey literature. Among the recommendations made (1), the one advocating the setting up of a data-base peculiar to each type of literature was quickly put into practice. The principle was to entrust national authorities, possibly constituted as a network whenever the country in question could or did not wish to resort to a solution centralized on the British model of the BLLD, with the task of taking stock of the grey literature documents published in the territory for which they were responsible, writing the catalographical description, allocating a classification code and taking part in the drawing up of a European data-base, regularly built up by sending the descriptive notices to a "common processing centre". The result was the creation in Luxemburg in February, 1980 of the SIGLE data-base (System for information on grey literature in Europe) through the good-will of the BLLD, the Commissariat à l'Energie atomique (Centre d'Etudes nucléaires, Service de Documentation) and the Fachinformationszentrum Energie, Physik, Mathematik Gmbh (FIZ) and with financial assistance from the Commission des

---

(1) J.M. Gibb and E. Philipps. A better fate for "grey" or "non-conventional" literature. In : Bull. Bibl. France, Paris, t.24, no. 7, 1979, p. 349-353.

Communautés européennes. SIGLE started operations in January 1981. During the first period of its existence, considered as experimental, SIGLE was chiefly interested in scientific and technical research reports. As early as 1983, other documents, mainly theses and other disciplines were to enrich the base. A stride forward was made in early 1983 when SIGLE was placed on the INKA host in Karlsruhe. Two other European hosts, Télésystèmes-Questel and Blaise seem desirous of affording on-line access to the base in the near future.

The French participation in SIGLE is handled by the CEA and CDST. Both these bodies, indeed, have decided to collaborate and harmonize the efforts they have been making for some time now in favour of grey literature. The CEA has been entrusted with the task of serving as a community processing centre ; for its part, the CDST is responsible for collecting the French documents, cataloguing them and handling their supply, as well as passing the magnetic tape containing the notices to the CEA.

An initial limitation ought already to be introduced : the CDST's contribution is confined, of course, to scientific and technical documents, those which correspond to the disciplines it develops. Relays will thus have to be set up so as to take the grey literature of other disciplines into account, namely human and especially social sciences. A project known as INEDIT (Essential information on unpublished social science documents and work) conceived by the Commission de coordination de la documentation administrative, placed under the authority of the Prime Minister, is currently being set up.

Access to foreign grey literature (by foreign, we mean non-European since the SIGLE, once fully operational, will be entrusted with satisfying all literature requirements from the member-countries of the European community).

- The American research reports collected by the National Technical Information Service (NTIS), a federal body publishing and disseminating reports financed from public funds are sent, in the form of microfiches, to the Centre de documentation de l'armement (CEDOCAR) together with the magnetic tape describing them. The latter is henceforth accessible on the national Télésystèmes host. As far as it is concerned, the CDST is authorized to promote and disseminate the paper products derived from the NTIS base ; it possesses, furthermore, for its own requirements, a copy of the magnetic tape.

- Moreover, the French and Japanese Governments have undertaken negotiations in which the Japan Information Center of Science and Technology (JICST) participates. They suggest making an office available to the JICST on CDST premises as early as September, 1983. Conversely, the CNRS could open a branch shortly in Tokyo.

Amongst other subjects on the programme of this cooperation is a regular exchange of information on the grey literature published in the partner countries and the supply of these documents.

1.2.- At the national level

France has selected a decentralized system of access to primary documentation and encourages task-sharing based on the disciplines or types of documents. Several establishments, including the CDST, take part in this national network. This option prevents any single body from holding all French grey literature, the bibliothèque nationale receiving, through legal registration, only conventional literature.

Escaping thus the CDST as they are allocated to other bodies are :

- the industrial catalogues collected and kept by the Bibliothèque de l'Université de Compiègne ; the information they contain is accessible through two data banks, Batech machine tool created in 1981 comprising 4500 catalogues and technical notices and Batech biomedical, created in 1982, with 2500 catalogues.

- the patents which are filed, described and kept by the Institut national de la propriété industrielle (INPI), officially entrusted with examining and issuing invention-patents and certificates of conformity. The INPI has a bank of factual data with several complementary files (French patents since 1969 ; European patents since 1978) accessible on Télésystèmes-Questel. Currently only the biotechnology patents are sent to the CDST by the INPI ; they are analyzed and described in PASCAL and in its paper-products. This initiative will be pursued in all the fields in which PASCAL will seek exhaustivity. It should be noted that up to 1981 patents were amply described in PASCAL. The information, however, was taken not from the original document but from the Bulletin officiel de la propriété industrielle.

- the standards. Drawn up at the instigation of the Association française de normalisation (AFNOR), French correspondent of the International Organization for Standardization (ISO) and disseminated by this body, French standards and draft-standards, technical regulations, professional specifications and foreign standards containing technical data have been described since 1976 in the NORIANE bibliographic base which is also accessible on Télésystèmes-Questel.

Other grey literature documents are eliminated subjectively if they do not concern the CDST's usual activities, like papers presented to congresses and conferences (but the reports which replace them are fully entered), technical rules and recommendations, publicity documents... Efforts will therefore be concentrated on theses, research-reports and translations.

These then are the CDST's proposed goals. We will attempt now to assess the results of its action, results of course provisional since an evolution and an extension of the means implemented to control grey literature ought to correspond to its evolution and extension. Here we tackle a problem of a political and economic nature the solution of which no longer belongs to an isolated establishment like the CDST but calls for the implementation of sizeable means founded on a precise, comprehensive statutory basis.

2.- ACTIONS CONDUCTED BY THE CDST : REALITIES AND PROSPECTS

The three stages in the documentary chain namely gathering, document processing and information processing will be successively described for the theses and reports. The question of translations will be broached separately.

2.1.- Gathering

- Theses. A ministerial decree in 1976 called for the depositing at the CNRS-CDST of a copy of all scientific theses supported in French university and further education establishments and makes the library of the university where the thesis was supported responsible for its being sent. State and third cycle doctorates as well as docteur-ingénieur diplomas are also concerned by these regulations. Although not fully complied with, this decree makes it possible to gather information satisfactorily. The regular receipt of the lists drawn up by university secretariats enables gaps to be spotted and reminders to be sent out. In certain cases the candidates themselves, convinced of the utility of depositing theses at the CNRS, send it a copy of their work. The result is therefore favourable : 90% approx. of the 3500 scientific theses supported every year reach the CDST normally. The Ministère de l'Education nationale envisions reforming the regulations and henceforth subordinating the award of the diploma to the depositing of the thesis. More far-reaching reforms are also envisaged which, when they go through, will modify the thesis production and dissemination circuit considerably. Be that as it may, the CDST has currently a collection of 75000 scientific theses. It has also received, and continues to do so, theses from the medical disciplines. For lack of space, it does not keep them on its premises and analyzes them only selectively. The medical section of the Bibliothèque interuniversitaire de Clermont-Ferrand performs this analysis-work and publishes the Thesindex every year which indicates the content of each thesis using key-subjects.

- Research reports. The problem is of a very different nature : the reports are produced by public or private research-centres which have benefitted from the financial assistance of a public body, generally a ministerial department. The contract made between both parties imposes the writing of a report intended to present the results of the research. Now, no official text recommends or imposes the depositing of the reports even if they follow on from research financed out of public funds. The onus thus rests with libraries and documentary organizations to convince either the bodies authorized to place research-contracts or the many establishments which benefit from these contracts such that a copy of the reports be sent them. A difficult, virtually impossible task : the advantages (publicity given the document and, consequently, the issuing body itself through the description in the data-base and its paper products) are far from compensating, in the eyes of the authors, the drawbacks of the operation (loss of control over report-dissemination). Over and above these difficulties come often artificial restrictions, born of the legal nature of the contracts, which prevent or limit dissemination of the documents in many a case.

The CDST has established more or less regular contacts with 250 organizations which send it around 1700 reports every year. Privileged relations exist with certain ministerial departments (the former Délégation générale à la recherche et à la technologie and the Mission des études et de la recherche du Ministère de l'environnement and the Ministère de l'urbanisme et du logement), who deposit reports which are written following contracts placed with public or private laboratories and centres. Actions are currently underway to increase these acquisitions. A question which crops up, however, is to know how many scientific and technical reports are written every year in France. 5000? More? As things stand, we are forced to make very rough estimates.

2.2.- Processing of the document and the information

Theses and research-reports are catalogued by the Library according to ISBD standards ; a descriptive notice is established according to the regulations of the ICSU/AB. The documents are then forwarded to the specialists at the data-base who analyze them, index them and draft the abstracts. The titles and abstracts have systematically been translated into English since April 1982.

Since this date the descriptions of the French reports are sent to the CEA on magnetic tape to feed the SIGLE base. They comprise the PASCAL references and the English translation of the title field. The abstract is not taken into account by SIGLE. Negotiations are currently in progress with the Direction des bibliothèques des musées et de l'information scientifique et technique du

Ministère de l'Education nationale so that the description of the scientific theses be also communicated to SIGLE thereby increasing the French participation which remains low (10% in all).

Just like the other documents, the theses and reports are described in the data-base and appear in the printed products extracted from PASCAL. Since 1981 they have, furthermore, been grouped together in section 401 of the Bulletin signalétique which each month, for the theses, reports and congress records, publishes a notice comprising the description number, the title, the name of the author(s), the references and the indication abstract. The notices are classified per subject. Author indexes appear in the last volumes of the year. In this fashion 6500 documents are described per year.

They give rise, in addition, to particular catalogues :

- the Inventaire des thèses de doctorat soutenues devant les universités françaises which, since 1982 (theses supported in 1981), replaces the Catalogue des thèses de doctorat at the Bibliothèque nationale. Carried out at the instigation of the Direction des bibliothèques, des musées et de l'information scientifique et technique du Ministère de l'éducation nationale, this inventory has been drawn up based on the catalographical sheets written by university libraries. It is published on microfiche and on paper in 3 volumes, one corresponding to sciences, another to medical disciplines and the last one to legal and economic sciences as well as human sciences. The notices are grouped per university of support within each discipline. Author and university speciality indexes refer back to the notices. Right from 1983 (theses supported in 1982) the product will be improved. So as to introduce greater unity in the cataloguing, only three establishments will write the notices and handle the indexing : the CDST for the sciences, the Bibliothèque interuniversitaire de Clermont-Ferrand for the medical disciplines and the service du Fichier central des thèses de Nanterre for the human, legal and economic sciences. All of the products (magnetic tape, inventory on microfiche and paper) will be produced using the CDST's data-processing means. From 1984 the data-base will be placed on the host of the Ministère de l'éducation nationale in Isle d'Abeau.

- the catalogue des rapports de fin de contrat DGRST : since 1968 the CDST has been entrusted with keeping and disseminating the reports written after research conducted on a grant from the former DGRST. Regular updates obtained by phototypesetting have succeeded the first two catalogues covering the period 1968 - 1978. The descriptive notices are classified per discipline and sub-classified per research-theme. Author and contract-number indexes

complement each volume. The whole catalogue contains over 10,000 articles.

- the Catalogue des rapports de recherche sur l'environnement : designed as per the same principles as the previous one, it was created in 1981. The annual volumes describe around 500 reports.

2.3.- Communication

All the documents acquired by the Library are accessible on the spot in the reading room or remotely, via the department specialized in document-supply which provides paper or microform reproductions at the request of the users.

Although the CDST does not have the exclusivity of the supply of these documents (theses can be obtained at the library of the university of support and research reports at the contracting ministerial department) their grouping together in a single place is an appreciable factor. As it is a question of the participation in the SIGLE, the principle selected is describe only the documents actually filed and kept at the CDST. In this way can the functioning of SIGLE be respected : the user sends his request to the national authority he depends upon. The authority supplies that part of the order which concerns the documents it is responsible for and forwards the part of the order which deals with foreign documents to the national authorities in question.

Statistics prove that the demand is already high. In 1982 630 theses and 1120 reports were reproduced. It is true that 50% of the requests could not be satisfied, despite searches carried out with other French libraries. This fact demonstrates, if it were needed, what efforts have yet to be accomplished to ensure dissemination of grey literature.

2.4.- Particular case : translations.

An agreement made between the International Translations Centre (ITC) in Delft and the CDST associates the latter in the gathering and registering of translations. The World Transindex (WTI) computerized file set up on the ESA/IRS host provides access to 110,000 references and takes on 25,000 new references every year. Its objective is to bring together all the information on translations gathered since 1978 by the ITC, the European Communities and the CDST and, more particularly, locate them in conversational mode or off-line. Another instrument made available to researchers is the general inventory of translations which catalogues over 300,000 translations made prior to 1977 into French or English, thereby complementing the WTI.

There is a department at the CDST specialized in the translation of scientific and technical texts into French or from French into any foreign language. Specialized translators, selected in terms of the scientific discipline or the technical field in question, handle these tasks.

CONCLUSION

——We can only be delighted about noting the interest triggered off by grey literature in all its forms in libraries and documentation-centres. How can one not be anxious, though, about the volume of work yet to be accomplished and disappointed by the lack of concern, even ill will, of the producers of this literature, accentuated, it is true, in some countries by the indifference of political authorities? Nothing satisfactory will be secured without special financial assistance and personnel allocation to make up for the considerable time and work given over to this undertaking. Nothing coherent will be obtained either without the enactment of regulations compelling the author to deposit the document he has written in an establishment designated by law whenever there is no question of confidentiality.

It is up to international bodies like IFLA, UNESCO etc. within the context of the universal bibliographic control of publications and the Commission des Communautés Européennes to militate unceasingly with governments to convince them of the importance of what is at stake.

IFLA 1983

IFLA GENERAL CONFERENCE MUNICH 1983

Division: Special Libraries

Section: Science and Technology Libraries

54 - SCIE - 1 - E

RESEARCH AND DEVELOPMENT CHALLENGE BETTER SERVICES IN SCIENTIFIC AND TECHNICAL LIBRARIES

by

PENG Guiyuan

Library of the Chinese Academy of Sciences

Beijing, China

For internal use only:

to be brought to meeting no:

. . . . . 116 . . . .

Remarks:

to be presented orally ☐

for distribution only ☒

RESEARCH AND DEVELOPMENT CHALLENGE

BETTER SERVICES IN SCIENTIFIC

AND

TECHNICAL LIBRARIES

The Chinese Academy of Sciences was founded in 1949 and, as a result of constant developments and adjustments of more than 30 years, has now become a national comprehensive scientific research system, consisting of 140 research institutes.

The Library and Information System of Chinese Academy of Sciences (LISCAS) has at present a staff of more than 2,400 persons and book collections of 16,000,000 volumes, among which 420 librarians and 4,500,000 volumes are in the Central Library of the Academy in Beijing.

Ever since the beginning of its foundation, the Central Library has performed two functions to act as, first, a comprehensive library to serve the scientific research staffs of the Academy and the readers outside and, second, a coordination of the library and information services of different institutes. Thus, it is not only the centre of LISCAS, but also an important constitutent part of the national information system.

During the past 32 years, the Central Library with its affiliated institutes procured and exchanged books and other materials actively both at home and abroad, including literature after World War II and a large number of back issues and whole sets of important journals. Among its precious collections, there are periodicals published in the early 19th century and, much earlier, the Philosophical Transactions of the Royal Society of London from its first issue of 1665. In the meantime, it paid sufficient attention to the collecting of domestic periodicals, for instance, the back issues of Paleonotologia Sinica and Bulletin of Geological Society of China from the beginning of their publications. With its scope extending, the Central Library has contained vast collections of history of science, pure sciences, basic technology and the newly developed branches of applied sciences, including books, periodicals, conference proceedings, government publications, scientific reports, reference tools and other secondary and teritary literature.

This paper is to introduce the Central Library's work of reader service.

The basic figures in 1982 are as follows.

readers	168,672
circulation	375,345
queries	26,500
bibliographies in specific subjects	23 : 44
exhibitions	25,294
photocopies	741,790 pp
in-service training	3 cl. : 275 staff

The 32 year's developments of the reader services of the Central Library may be divided into two periods:

1. FROM THE 50'S TO THE EVE OF THE "CULTURAL REVOLUTION" IN 1966

During this period, the most significant event was that following the adoption of the 12-year Programme for the Development of Science in 1956, the Central Library convened two meetings of the library and information system. The 1958 meeting in Beijing further clarified the guiding principles of running library services; a workshop in 1959 summed up the experience of good services of a Dalian institute, where the meeting was held. Inspired by the spirit of the meetings and the institute library model, the Central Library and its affiliated institutes reorganized and selected the best methods to make their work more efficient. Raising slogans "Try our best for the profit of scientific research" and "Everything is for the reader," the Central Library enlarged the reading areas, prolonged the open hours, initiated telephone-searching, centralized borrowing and returning of books, photocopied various materials in different forms and sent books to institutes in suburban areas. These services were highly appreciated and praised by the readers in the words "The librarian thinks what the reader needs."

Besides the usual display of books, periodicals and other materials, the Central Library adopted other methods keeping its special collections known and familiar to the public. Catalogues of different materials and on different topics were compiled and published. Union List of Western Serials of the Academy was published in 1954, and later came out Union List of Russian Serials of the Academy, Union List of Books and

Periodicals in Chemistry, Mathematical Books in the Central Library and Biological Books in the Central Library. Many kinds of index bulletins were initiated as well. The series of "Tables of Contents of Russian Back Number Periodicals" was the first current awareness of periodical contents in China. In order to facilitate the unified cataloguing and classifying, the Library organized an ad hoc group under the supervice of a number of famous scientists to compile the Classification Schedule of the Library of the Chinese Academy of Sciences and the "Index of the Classification" and relative cataloguing rules. On the foundings of new institutes, the Central Library edited proper "Basic Catalogues" in various languages, apart from providing with depositing and transfering books and periodicals. In addition, the Central Library based on the reference queries selected topics of common interests to compile retrospective bibliographies. Some of those covered more than several decades, and some had annotations and brief accounts, such as "Infrared," "Ultrasonics," "Reinforced Plastics" and the like. When the border disputes ariced, the Central Library edited and printed proper lists of reference books and articles in time, which did considerable contribution in defending the country's territorial integrity and improving the friendly relations between China and her neibour countries.

As a membe· of the National Central Library Committee, the Central Library joined the national centralizing cataloguing, the dissimilating of printed cards, and the compilating work of union lists like Union List of Western Periodicals in the Chinese Libraries, Union List of Russian Periodicals in the Chinese Libraries.

The Central Library began to edit current indexes of Chinese and foreign periodicals in the early 50's. In the 60's, after a nationwide coordination, it participated in the organization of the national literature retrieving system and edited current indexes on several subjects like "Index on Physics," "Index on Biology" and others. Some of them had lasted for long years and some, for instance, "Laser Index," were transfered to the newly established institutes concerned afterwards.

In 1959 and 1962, the Division for Reader Service of Natural Sciences moved to the newly-built Zhongguancun -- the City of Science where most of the institutes are located. With a view to more deeply understand the reader's needs and to more effectively serve the readers, the Library launched a training programme to make the potential users familiar with the catalogue system, specialities of different literature, the usage of reference books and literature searching tools. In addition, it sponsored exhibitions of literature on specific subjects, such as "Laboratory Construction," "Literature on Maser and

Laser," "Literature on Nucleic Acid." Such exhibitions not only displayed books, periodicals, scientific reports, but also retrieving tools. There were too "hot" topics from routine reference queries which later became SDI services, for example, the "cancer research."

Readers coming from different fields, the Library's services must cooperate with various institutes of the Academy both in the use of primary sources and in answering of reference questions. For example, once a question on "lac insects" was answered for a research institute with retrospective literature, later when the same question was asked by another reader, it was refered to the said institute. Such a method did not bring much burden to the institute that received the transfered question, generally it was willing to join the cooperation, and paved the way for potential referral service. Sometimes the transfered questions refered to specific topics with which the institute had never dealt, however, since the questions belonged to the specific dicipline, these questions were also gladly received.

2. FROM THE "CULTURAL REVOLUTION" TO THE STAGE OF NEW DEVELOPMENT

During the 10 years of the "Cultural Revolution," the research work of the Academy suffered a great deal while the work of the Library was interrupted and the reader services badly affected in particular -- the importance of historical background and the continuity of science were no more emphasised; the full value of scientific literature was neglected; the reading areas were decreased. Though the Library was still open everyday, the number of the reader was few. Such a situation lasted till the smashing of the Gang of Four in 1976, when the normal services began to be recovered. Guo Moruo, former president of the Academy and famous scholar and poet, praised in his well-known poem the spring of 1978 as the Spring of Chinese Science, because from then on the atomsphere of scientific research awaken anew. The national Congress of Science cheered up the scientific workers. The 3rd Session of the 11th Congress of the Chinese Communist Party further encouraged the whole people. The conditions of scientific research therefore became much improved. The resolution of the 3rd Session called the nation to recognize the importance of science and technology. To be strong and rich, the Chinese people must as soon as possible realize the four modernizations, especially the modernization of science and technology. The prerequisition of having science and technology modernized is to provide information in time, to arm the scientific workers with necessary knowledge and to make them know what has been done earlier in their fields and what are being done at the moment. With its precious col-

lections recovering, the Central Library sees readers from various fields crowd in the catalogue department, reading-rooms and circulation desk asking for better information. On the other hand, the differentiation of science, the emergence of new independent disciplines and specialization within each scientific discipline are still confusing and burdensome. and libraries of science and technology are facing the challenge of research and development. To meet the needs of the new situation, the Central Library and its system must consider proper measures and better services, raise the "extensive, swift, effective and accurate" services to a high level and emphasise the procedures to carry them out.

Through deliberation and consultation, in December, 1978, the Academy held the first Library and Information Conference in Guangzhou, at which a series of resolutions were drawn. Libraries of science and technology must give services beyond the conventional level. They must meet the urgent needs of research and development. They must enhence their role of information and give information in time. They must adopt the new techniques, such as computer application, automatic control, newer installation of equipments to perform its routine work and services rapidly and accuratly. For the best utilization of budget, space and personnel and better resource-sharing, they must have their staff trained and specialized. Apart from the establishment of Information Division in the Central Library, the library and information groups in the affiliated institutes were reorganized into one unit. A Superior Committee was appointed under the direction of the president of the Academy to take charge of and to push forward the development of the LISCAS system. After that, the Central Library played an active part to put the resolutions into being and make the network in its way and in sound development.

The Central Library's first procedures are that of the recovering and developing work, which will be introduced in the following paragraphs.

1. Strengthening the circulating and other reader services in the reading areas by enlarging the reading-rooms and reorganizing the collection of reference books and literature-retrieving tools. Owing to the comprehensive nature, its stack is not open to the public, the Library has to display new books and new materials so as to make them easily accessed. Reserve system, centralizing in lending and date-dues, sending books to affiliated institutes located in far away Beijing suburb, began anew. Book exhibitions on specific subjects or on various conferences, both academic and administrative, such as "Environment Control," (a series of exhibitions) "Solid State," "Statistical Physics," "Plant Breeding," "Monoploids," "Genetic Engineering" and others. Together with exhibitions,

proper bibliographies were provided. Besides, both the interlibrary loan and international loan were restored and developed. Some famous libraries of the world have borrowed what they have been in wanting from the Central Library and its affiliated units. These are benifitial to the international cultural and scientific communication.

2. Better reference services and the improvement of the reference technique. During the open hours, reference librarians have done a lot in helping readers use the card catalogues in the right way for locating materials. At the reference desk, they have dealt with ready references with reference tools. In the literature-retrieving areas, they usually help readers in retrospective retrieving and current information. In doing so, it is easy to find out the common characteristics of various queries, and the potential trend hidden in them. The queries, concerned various disciplines and subjects, are not easy to deal with. But the best thing to do is to catch the main point and improve the working methods and learn to handle queries with better techniques. Further more, they recognized other than methods and techniques, the most important thing is to cooperate and coordinate such services into a network in which the participating libraries could perform their function in a cooperative and harmonious way. The general principle they affirmed is to make full use of the actual secondary and teritery literature both from home and abroad, helping the readers search what they need in a wider horizon, instead of being limited in the primary literature in the stacks. More time has been spent on supervise work and referral work, on compiling bibliographies on works of the forerunners and on cumulating useful card on some specific topics to inform the proper readers necessary knowledge at the proper moment. The policy is benifitial to services, materials cumulation and staff specializing training.. In particular, the referral services has initiated the technique of specific referral. According to the characteristics of the LISCAS and the urgent needs of research and development, the reference services and the referral technique must be further developed. It wants the prerequisite of surveying, coordinating, testing and planning. If such work could be coordinated in a harmonious mode, the potential work will be developed from "self-spontaneous" to "self-conscious" manner.

3. Reporting the new literature. This work started in 1952, when two periodial indexes on Chinese and foreign serials stored in the Library were published. As a result of adjustment, the Library undertook a part of the national retrieval system, according to coordination, the contents of the periodicals were reported to a larger extent. Afterwards, it attached major importance to the report of special subject, with respect to the situation of natural resources and the projects of scientific and technological researches of the Academy. After

the 1978 Library and Information Conference, the basic institute libraries were strengthened and the most specialized subjects were transfered to them where they can report rapidly by their respective holdings; subjects of comprehensive nature and involving many units which were reserved in the Central Library. At present, such reports of contents are of three types: 1) Printed and emerged into the national retrieval system, such as Environment Protection, Earthquake; 2) Photocopied: a) Contents pages of the current issues, selected by information divisions and checked by scientists in special fields, are photocopied and distributed once a week; b) Contents pages of some periodicals are photocopied upon receipt and immediately sent to the scientists concerned; 3) Translations. Important articles and informations in certain aspects are translated or sumarrized, printed and distributed to the persons concerned.

4. Compilation of bibliographies. A specific subject generally involves literature of different types, covering different periods. To compile bibliographies completely and systematically even on the basis of cumulation is quite burdensome and difficult, though the former samples were consulted. Such bibliographies consist the fundamental literature which the individual research institute should have a good command, such as "Accelerators," "Infrared," "Remote Sensing," "Solar Energy" and others as "Literature on Chinese Earthquakes," "Bibliography of Chinese Botany." So far, some of them have been published while some are being prepared to be published or still in card stage.

5. Editing and publishing informational publications. The Central Library edits and publishes publications such as Library and Information Services, Science and Reserch Management, Collections of Translated Articles, Advances in ... Fields. It also cooperates with affiliated institute libraries in coordination. They collect selected informations in a certain field newly published in periodicals and current awareness materials. The publications edited by the affiliated institutes, such as Information on Some Branches of New Technology, New Advances in ..., are beneficial for scientific workers and technical personnel to broaden their view and mind.

The informational materials concerning the organization and management as well as the projecting and planning of scientific research work provided by the Central Library have played a significant role in the establishment and development of the scientific research system and the improvement of management.

6. Collecting and utilizing microforms and audio-visual materials. Since the end of World War II, many important scientific and technical reports have emerged in non-printed form. This is a big change of publication. The Library began

to collect microforms in the mid of 50's. Now, it has a special holding of report literature in the media of microfilms, microfiches and microprints.

The Library has paid much attention to the collecting of conference preprints, papers and proceedings, a large amount of which are magnetic tape, disc, drum and hence possessed a lot of audio-visual materials. Such non-printed literature needs new equipment for cataloguing, classificating and reading. The installation of the new instruments can not only provide reading facilities for the readers but also produce audio-visual media for the reasearch work of the Academy. The coloured visual features offer the best function to revisualize the original colour and form. Since the installation fee is expensive and the rate of utilization is not as frequent as the ordinary instruments, proper coordination in the system has to be performed. In the photocopying aspects, there are still the problems of sharing instruments, because in the small institutes it is not necessary to equip as many suitable machines and equipments as in the big units.

7. Applications of computers in reader services. Computers with high speed and efficiency is applicable to literature-retrieving though the fee of running computerized retrieving is high. Through deliberation and consideration, the Library and its affiliated units cooperated with each other in importing and exchanging magnetic tapes and covering them into a unified standard. By this way, the Library sets up its bases and provided services of domestic and foreign literature-retrieving. The aim is to combine the international, the national and the academic services into one system, and make the scientific workers better informed.

More than 30 affiliated units within the Academy have made experiments to use computers in their services. The Central Library, with the support of the Academy, has done a great of coordinating work. Many meetings have been held in recent years to clarify the series of procedures; at these meetings the Library has established the automatic indexing system (The Library), multi-users on-line retrieving softwares (The Library + Shenyang), books circulation and management (Wuhan), books-acquisiting system (Lanzhou), foreign periodicals recording and management (Shanghai) and the SDI services on microcomputers in many affiliated institutes, and has planned to concentrate and change various services into the literature-retrieving. Now, the Library is collecting and exchanging tapes and carrying out a series of experiments, and next, will unify the models of computers, to prepare on-line services, to share out the work, and to strengthen the cooperation with affiliated units. And based upon the special characteristics of different regions and institutes, the Library coordinates the establishment of the data-bases of the publications within

the Academy. The Chinese Institute of Botany has indexed the Chinese botanical literature from the beginning of this century, and at publishing the retrospective bibliography of botany, it has planned to imput the newer data into the data-base, which is considered as an important constitutent part of the "Chinese Biological Literature." Recently, another meeting was opened in Beijing on the deliberation and consultation of the "Chinese Chemical Data-base." Some resolutions were drafted, indicating the participants conducted in the standardized and coordinated manner. At the same time, the Library is preparing the union list of periodicals data-base of the LISCAS system, whose entries and items are following the model of the ISO. This is a big engineering undertaken by all the libraries and information units of LISCAS. It needs integrated constitution and careful coordination and a harmonious plan for different parts of the same engineering to guarantee it to be finished in a perfect schedule.

On the whole, headed by the Central Library, the LISCAS system has done a lot to meet the challenge raised by research and development in recent years in exploring resources of printed publications, strengthening the information function of the libraries, attaching to importance the non-printed materials and developing reference services, information services and information research. In the organizational aspect, the leadership has been strengthened, the system more integrated and the staff-training launched. A harmonious division of labour as well as effective network has been in action. Besides, many new equipments have been installed to meet the reader's pertinent needs. All these ensure the rise of the reader services to a higher level.

It is certain that the development of modern science and technology will at times challenge the library and information work. Yet it will provide the library with new means and technology. Librarians should do the best to make use of the achievements of science and technology in order to promote the library work and library services, assisting readers to carry on their research work intensively. In short, better services would facilitate the development of the career of library and make contribution to the advancement of science and technology.